

APPENDIX C

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GOALPOS .. SUM(I,A(I)*MODELAA*DT) =E=FINALPOS;  
MODE1(ILAST) .. SUM(I,-A(I)*MODELAA*MODELb/(MODELb-  
5 MODELa)*(EXP(-MODELa*(T(ILAST)+DT-T(I)))-  
-EXP(-MODELa*(T(ILAST)-T(I)))) =E= 0.0;  
MODE2(ILAST) .. SUM(I,A(I)*MODELAA*MODELa/(MODELb-  
MODELa)*(EXP(-MODELb*(T(ILAST)+DT-T(I)))-  
-EXP(-MODELb*(T(ILAST)-T(I)))) =E= 0.0;  
10 DERIV1(J) .. 1000.0*SUM(I,A(I)*T(I)*EXP(ZETA(J)*W(J)*T(I))*  
SIN(WD(J)*T(I))) =E= 0.0 ;  
DERIV2(J) .. 1000.0*SUM(I,A(I)*T(I)*EXP(ZETA(J)*W(J)*T(I))*  
COS(WD(J)*T(I))) =E= 0.0 ;  
  
15 % MODELAA is the mechanical gain of the system, MODELb, and MODELa  
% are the two time constants of the system in radians. One time constant is  
% associated with the L/R rise time of the motor inductance and the other is  
% the mechanical time constant of the rigid system. The A(I) are the voltages %  
which need to be determined. The T(I) are the times for each of the A(I).  
20 % DT is the time spacing of the outputs. W(J) are the undamped flexible  
% modes, WD(J) are the damped flexible modes (in radians/s).  
  
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